

Expansion of Cord Blood Cells Using a Mix of Neurotrophic Factors

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Abstract : Haematopoiesis is a developmental process that generates all blood cell lineages in health and disease. This relies on quiescent haematopoietic stem cells (HSCs) that are able to differentiate, self renew and expand upon physiological demand. HSCs have great interest in regenerative medicine, including haematological malignancies, immunodeficiencies and metabolic disorders. However, the limited yield from existing HSC sources drives the global need for reliable techniques to expand harvested HSCs at high quality and sufficient quantities. With the extensive use of cord blood progenitors for clinical applications, there is a demand for a safe and efficient expansion protocol that is able to overcome the limitations of the cord blood as a source of HSC. StemCell2MAX™ developed a technology that enhances the survival, proliferation and transplantation efficiency of HSC, leading the way to a more widespread use of HSC for research and clinical purposes. StemCell2MAX™ MIX is a solution that improves HSC expansion up to 20x, while preserving stemness, when compared to state-of-the-art. In a recent study by a leading cord blood bank, StemCell2MAX MIX was shown to support a selective 100-fold expansion of CD34+ Hematopoietic Stem and Progenitor Cells (when compared to a 10-fold expansion of Total Nucleated Cells), while maintaining their multipotent differentiative potential as assessed by CFU assays. The technology developed by StemCell2MAX™ opens new horizons for the usage of expanded hematopoietic progenitors for both research purposes (including quality and functional assays in Cord Blood Banks) and clinical applications.

Keywords : cord blood, expansion, hematopoietic stem cell, transplantation

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